

REMARKS

Specification

In the specification, applicant has replaced the paragraph beginning at page 9, line 10, with the paragraph below. The sequence originally listed has been deleted, whereas the Sequence ID Number of the sequences referred is instead utilized to cite to the referenced sequences in the attached Sequence Listing, thereby complying with the requirements of 37 CFR 1.121(d).

The present invention is directed to a method of inducing the body to produce an antibody against the region of the CCR5 receptor in wild type individuals, that is affected by the delta 32 deletion and vaccines for producing said antibody. The antibody is produced is by treating the individual using a vaccine consisting of the polypeptide and derivatives thereof disclosed in SEQ ID NO:1-3. The polypeptide based vaccine of the present invention contains the amino acids that are present in the wild type CCR5 receptor, that are eliminated or replaced in the delta 32 deletion. Using this molecule (or a derivative of it), the body will produce an antibody, that binds to the CCR5 receptor.

Furthermore, in the specification, applicant has replaced the paragraph beginning at page 11, line 4, with the paragraph below. The sequence originally listed has been deleted, whereas the Sequence ID Numbers of the sequences referred is instead utilized to cite to the referenced sequences in the attached Sequence Listing, thereby complying with the requirements of 37 CFR 1.121(d). Furthermore, the order of the amino acids has been adjusted to render the specification more compatible with the Sequence Listing.

The treatment of the present invention entails the inducing of the body to produce an antibody against the region of the CCR5 receptor, in wild type individuals, that is effected by the delta 32 deletion. This is accomplished by using a vaccine consisting of the polypeptide disclosed in SEQ ID NO:1. Derivatives of the polypeptide may include compounds in which any one or more of the amino acids in the invention has been substituted with one of similar charge, acidity, basicity, structure or functional group. For instance in the initial amino acid sequence shown in SEQ ID NO:1, Tyr-Ser-Gln-Tyr, Serine (Ser) is an amino acid containing a hydroxyl group. Threonine (Thr) is also a hydroxyl group containing amino acid. A derivative of the polypeptide would include Tyr-Thr-Gln-Tyr, as shown in SEQ ID NO:2, in which one hydroxyl containing

amino acid is substituted for another. Likewise in the sequence Leu-Leu-Val-Met-Val disclosed in SEQ ID NO:1, Methionine ( Met) is a sulfur containing side chain. A derivative of this would include Leu-Leu-Val-Cys-Val, as disclosed in SEQ ID NO:3, where the sulfur containing amino acid Cysteine (Cys) is substituted for the sulfur containing Met. Likewise derivatives may also include chemical modifications of the amino acids described in this invention. For instance, many of the amino acids can be methylated, hydrated, or modified using several other standard chemical methods. These modified amino acids would also be considered derivatives of the invention. This invention also includes the three dimensional structure that is generated by this amino acid sequence. It is possible that a molecule with the same three dimensional structure of the invention, can be generated using a completely different set of amino acids. This new molecule would also be considered a derivative of this invention.

### Claims

Applicant has amended claims 1, 2, 4, 5, 6, 8, and 9, to better exemplify the current invention and to bring the invention into compliance with 37 C.F.R. 1.821 – 1.825. In particular, the applicant deleted the sequence of amino acids listed in those claims 1, 4, 6, and 8, while adding citations to the Sequence Listing and the proper Sequence ID Numbers in all amended claims, a necessary amendment for the allowance of these claims.

### CONCLUSION

For the foregoing reasons, Applicant requests reconsideration of the rejection.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that the foregoing Response was mailed by first class mail,  
postage prepaid, in an envelope addressed to the Commissioner for Patents  
P.O. Box 1450 Alexandria, VA 22313-1450 on this 21<sup>st</sup> day of June, 2006.



Thomas A. O'Rourke